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ABSTRACT

To investigate locus of control and its relationships to ethnicity, socioeconomic status (SES), and academic achievement, a large sample of Black, Mexican-American, Native American, and White students in the fourth, fifth, and seventh grades were administered the Academic Achievement Accountability Questionnaire (a locus-of-control questionnaire) and achievement tests. The locus-of-control instrument measured the degree to which the students felt responsible for their marks on tests and assignments and how important they believed studying was in determining achievement. As expected, greater internal locus of control was found for females and in the higher grades. Although internality was significantly related to both SES and ethnicity, SES exhibited the stronger effect on locus of control, significantly stronger for the White and Mexican-American subsample (the largest ethnically mixed subsample studied). Internality was associated with high achievement test scores, even with the other assessed variables controlled. (Author/MCG)

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Locus of Control:

Ethnicity, SES, and Academic Achievement

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Paper presented at the American Educational Research Association Annual Meeting, New Orleans, LA, April 1984

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Abstract

A large ethnically mixed (Black, Mexican American, Native American, and White) sample of fourth, fifth, and seventh graders was administered a locus of control questionnaire and achievement tests. As expected, greater internal locus of control was found for females and in the higher grades. While internality was significantly related to both SES and ethnicity, SES exhibited the strongest effect on locus of control, which was significantly greater than the effect of ethnicity for the White and Mexican American subsample (the largest ethnically mixed subsample studied). Internality was associated with higher achievement test scores, which could not be accounted for by other assessed variables.

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Locus of Control and School Age Children

The construct of locus of control has been a subject of psychological research since the late 1950s (e.g., Phares, 1957; Rotter, Seeman & Liverant, 1962). Generally, it conceptualizes the degree to which an individual perceives successes and failures in life as being either internally or externally controlled. Persons with a strong internal locus of control believe that such events are largely influenced by their own behavior. Persons with a strong external locus of control believe that these events are largely influenced by factors beyond their control, factors such as fate, luck, and powerful others.

A substantial body of research has addressed locus of control in school-age children, particularly its relationship to the variables of age (or grade), sex, ethnicity, socioeconomic status (SES), and academic achievement. The present research examines these relationships in the context of a single, large study. An account of the study and its results will be preceded by a brief review of previous research bearing on these relationships. This review is intended to be representative rather than exhaustive, as the literature on locus of control is both extensive and varied (see Lefcourt, 1976 and Phares, 1976 for more thorough reviews).

Before reviewing research on children's locus of control, some comments regarding its assessment are necessary. Locus of control is virtually always operationalized by asking children to respond to written or oral statements or questions concerning the behavioral control they, or people in general, have over various events. This response is most often of a forced-choice format, e.g., selecting one of two statements best representing their view, answering a yes/no question or agreeing/

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disagreeing with a statement, or making a Likert scale response (e.g., strongly agree to strongly disagree) to a statement. All studies reviewed here made use of a questionnaire of this sort.

Numerous locus of control scales can be found in the literature. Several of the most frequently used are The Intellectual Achievement Responsibility (IAR) Questionnaire (Crandall, Katkovsky, & Crandall, 1965), The Internal-External Locus of Control (I-E) Scale (Rotter, 1966), The Bialer Locus of Control (Bialer) Scale (Bialer, 1961), and the Nowicki-Strickland Locus of Control (Nowicki-Strickland) Scale (Nowicki & Strickland, 1973). These scales can be found in Lefcourt (1976). Other researchers have modified the above scales or developed their own (e.g., Clifford & Cleary, 1972; Gruen, Korte, & Baum, 1974). A criterion for including a study in the present review was that the results of at least a six-item locus of control scale were reported.

A number of researchers contend that locus of control is not a unitary construct. For example, Crandall et al. (1965) have divided the IAR questionnaire into separate subscales which assess a child's assumed responsibility for success and failure in academic settings. Nowicki (1976) factor analyzed the Nowicki-Strickland scale into three factors: helplessness, luck, and achievement. In a revision of the I-E scale, Levenson (1974) created an instrument with three similar subscales: powerful others, chance, and internality. Garza (Garza & Ames, 1974; Garza & Widlack, 1977) contends that the I-E scale can be separated into five subscales; luck/fate, politics, respect, leadership/success, and academics.

Efforts to break down locus of control scales into components have not generally resulted in a significant increase in predicting behavior

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relative to predicting behavior from a global scale (Nowicki, 1976). Also, the factor analyses of global scales have often occurred without the support of theoretical underpinnings. The following review generally ignores distinctions within the locus of control construct. That is, the scales employed in all studies reviewed here are assumed to be measuring more or less the same thing: children's perceptions of the degree to which they influence events in their lives. In instances where researchers report results of both a total locus of control scale and the components of that scale, only the results for the former will be considered. To do otherwise would render this review unwieldy and far longer than desired.

Age. A positive relationship between age and internal locus of control among school age children is well established, particularly among elementary school age children (e.g., Bachrach, Huesmann, & Peterson, 1977; Gruen et al., 1974; Kifer, 1975; Milgram, 1971; Nowicki & Strickland, 1973; Penk, 1969; Piers, 1977). An explanation of the relationship between age and locus of control is suggested by Bachrach et al. (1977):

> In the early stages of development there is probably little conception of the relationship between the outcome of events and one's own behavior. Consequently, young children view their experiences as being externally controlled. As development proceeds the child begins to note that he is often able to influence the outcome of events by his own behavior. This shift in the conceptualization of locus of control from external to internal most probably reflects the child's growing overall ability to categorize events in terms of cause and effect. (p. 1340)

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Increased internality is not only a function of chronological age but of mental maturity as well. Retarded children are less internal than normal children of the same age (Bialer, 1961).

Sex. While it may be that older adolescent and adult males are more internal than females (Maccoby & Jackson, 1974), there is some indication that among elementary age children females are more internal than males. Cooper, Burger, and Good (1981) conducted a meta-analysis of ten studies which had administered the IAR questionnaire to elementary school children. Although differences were often non-significant in the individual studies, results of the meta-analysis indicated females took more responsibility for their academic success than did males.

Studies which suggest the greater internality of females using different locus of control scales include Clifford and Cleary (1972) and Gruen et al. (1974). Clifford and Cleary found fourth, fifth, and sixth grade females to be non-significantly more internal than their male counterparts. Gruen et al. found that among second, fourth, and sixth graders Black females were significantly more internal than Black males, White females were non-significantly more internal than White males, and Hispanic males were non-significantly more internal than Hispanic females (this latter difference was extremely small). The majority of studies either do not report having analyzed for sex differences or do not report the direction of non-significant differences (e.g., Battle & Rotter, 1963; Nowicki & Strickland, 1973; Rabinowitz, 1978; Shaw & Uhl, 1971). One conspicuous exception to reported differences is the Bachrach et al. (1977) study in which male first through fifth grade children at a private day school were significantly more internal than females.

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The trend of greater internality for females may continue past the elementary years but with less consistency. Crandall et al. (1965), who found no significant difference between males and females in grades three through five, found females to be significantly more internal than males from the sixth to the twelfth grades on the IAR questionnaire. Piers (1977) found no significant difference between high school girls and boys using the same instrument. Buriel and Rivera (1980) obtained similar results using the I-E scale. Neither reported the direction of the non-significant difference.

While it appears that among school age children females are more internal than males, there is uncertainty as to the source of these differences. Some researchers (e.g., Crandall, Katkovsky, & Preston, 1962; Hoffman, 1972) point to differential socialization of males and females by parents and teachers. Another plausible explanation rests in the fact that females generally mature at a faster rate than males. Maturity, as previously noted, is positively correlated with an internal locus of control.

Ethnicity. While most studies have generally supported the conclusion that children from disadvantaged ethnic groups such as Blacks, Native Americans, and Mexican Americans are more external than White children, some studies have been inconclusive or contradictory.

A number of studies have found White children to be significantly more internal than Blacks (Gruen et al., 1974; Lessing, 1969; Will & Verdin, 1978; Zytkoskee, Strickland, & Watson, 1971). Similar though non-significant results have been reported by Battle and Rotter (1963).

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Biener and Gerard (1975) found kindergarten through sixth grade Whites to be significantly more internal than Blacks on a "Fate Control" scale but found no significant difference (direction not reported) between the two ethnic groups on an abbreviated version of the IAR questionnaire. Shaw and Uhl (1971) found upper-middle SES second grade Whites to be significantly more internal than Blacks but found lower SES Blacks to be non-significantly more internal than Whites (the difference between the lower SES groups was extremely small). Milgram (1971) and Solomon, Houlihan, and Parelius (1969) found no significant differences between Black and White children. Neither reported the direction of the non-significant difference. Katz (1967) compared a sample of Black fifth and sixth grade children to Crandall et al.'s (1965) norms for White sixth graders and found them to be "almost identical".

Two studies comparing Native American and White children reported somewhat conflicting results. Jessor, Graves, Hanson, and Jessor (1968) found Native American high school students to be more internal than Whites, although differences were non-significant. Tyler and Holsinger (1975) found White fourth grade children to be significantly more internal than Native Americans. This relationship was significant at grades seven and nine for females but non-significant for males. At the eleventh grade White females were non-significantly more internal than Native American females, but among males the relationship was reversed, albeit non-significantly so.

The results for Whites and Mexican Americans/Hispanics are also mixed. Gruen et al. (1974) found White second, fourth, and sixth grade children to be significantly more internal than Hispanics. Biener and Gerard (1975)

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found White kindergarten through sixth grade children to be significantly more internal than Mexican Americans on a "Fate Control" scale but found no significant difference (direction not reported) between the two ethnic groups on an abbreviated version of the IAR questionnaire. Buriel (1981) found White fourth and fifth graders to be non-significantly more internal than Mexican Americans. Buriel and Rivera (1980), Cole, Rodriguez, and Cole (1978), and Nelson, Knight, Kagan, and Gumbiner (1980) do not report the direction of non-significant differences between the two ethnic groups. Two studies (Jessor et al., 1968; Knight, Kagan, Nelson, & Gumbiner, 1978) found Mexican Americans to be more internal than Whites, although at non-significant levels. While it appears that the trend is for White children to demonstrate a greater internal locus of control than children from disadvantaged ethnic groups, the trend is far from being a strong and consistent one.

One possible explanation for the inconsistent results may lie in the failure to control adequately for the SES of the respondents. Closer analysis of the 17 studies reveals that no less than 12 failed to report adequate control for SES. The inappropriateness of describing ethnic differences in locus of control without taking into account SES has been discussed by a number of researchers (e.g., Buriel, 1981; Garza & Ames, 1974; Solomon et al., 1969).

Socioeconomic status. There is a tendency for children among middle and upper SES backgrounds to exhibit greater internality than those from lower SES backgrounds. Nowicki and Strickland (1973) found higher levels of SES to be associated with greater internality among "mostly Caucasian"

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third through tenth grade children. Rabinowitz (1978) found the same to be true of Black sixth grade children.

Battle and Rotter (1963) found middle SES sixth and eighth grade Blacks to be significantly more internal than lower SES Blacks. The difference for Whites was in the same direction although it did not reach significance. Shaw and Uhl (1971) found second grade middle SES Whites to be significantly more internal than lower SES Whites. Here the difference for Blacks was in the same direction but did not reach statistical significance. Bartel (1971) found a higher level of SES to be significantly related to locus of control among fourth and sixth graders (ethnicity unspecified) and to be non-significantly related to internal locus of control among first and second graders. Crandall et al. (1965) found a higher level of SES to be significantly related to internal locus of control among sixth through twelfth graders (ethnicity unspecified) and to be non-significantly related to internal locus of control among third through fifth graders. Gruen et al. (1974) found a higher level of SES to be significantly related to internality among White second graders and to be non-significantly related to internality among fourth graders. They report a small and non-significant relationship between a lower level of SES and internality for a sixth grade sample. This is the only study in which a lower SES sample was reported to exhibit even non-significant greater internality than a higher SES sample. The most reasonable conclusion at this time is that middle and upper SES children are more internal than their lower SES peers.

Solomon et al. (1969) report no significant difference for SES among fourth and sixth grade Black and White children. They do not report the

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direction of this non-significant difference. The authors attempt to explain their finding in terms of differences between measures of locus of control. They administered the IAR questionnaire which assesses children's assumed responsibilities for school related contingencies. The authors suggest that locus of control scales which assess more general contingencies, such as the Bialer scale, are more likely to show an effect for SES. This view is also shared by Rabinowitz (1978) who states:

> Certain theorists have suggested that expectancies of locus of control about the school situation are specific to that environment (Crandall, Katkovsky, & Crandall, 1965). Thus they may well bear less relation to the child's socioeconomic status than generalized expectancies which are learned on the basis of a wide range of life situations. (p. 1344)

As previously noted, however, Crandall et al. (1965) reported a significant correlation between SES and internality for grades six through twelve using the IAR questionnaire. Given this finding, the explanation suggested by Solomon et al. (1969) and Rabinowitz (1978) must be considered speculative at best. The present study offers an opportunity further to test their hypothesis in that the locus of control measure used in present study addressed school related contingencies only.

Academic achievement. A moderate correlation between academic achievement and locus of control is a well replicated finding. Stipek and Weisz (1981), in a major review of the literature, concluded that locus of control is correlated with both achievement test performance and grades. They also note that in most cases a positive relationship between internal locus of control and achievement exists even after the effects of IQ are

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controlled. In the same vein, significant relationships between locus of control and academic achievement are often found within single grade levels of children (e.g., Clifford & Cleary, 1972; Kifer, 1975; Nowicki & Strickland, 1973).

The purpose of the present study was to examine the relationship of locus of control to the variables of age (or grade), sex, ethnicity, SES, and academic achievement. Of particular interest was the differential relationship of ethnicity and SES to locus of control. The authors hypothesized that of the two, socioeconomic status would be a significantly greater correlate of locus of control.

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Method

Subjects

The original subject pool included 1962 fourth, fifth, and seventh grade students who attended a central Washington State metropolitan area school district. The original subject pool comprised approximately 90% of the children enrolled in the three grades. Nine children of the original pool were discarded because of missing information regarding sex or ethnicity. Also, the study sample was restricted to White, Black, Mexican American, and Native American children only. Twenty-two children from all other identified ethnic groups accounted for only one percent of the otherwise available sample. Table 1 lists the number of children for which data was analyzed by grade, sex, and ethnicity.

Insert Table 1 about here

Participation in the Federal Government's free and reduced lunch program was used to determine a child's SES. Eligibility for the program is based on family financial need. Those children participating in the program were classified as residing in lower SES families (lower SES), while those not receiving the free lunch were classified as residing in middle to upper SES families (mid-upper SES). Approximately 29% (n = 479) of the White, 59% (n = 30) of the Black, 67% (n = 140) of the Mexican American, and 68% (n = 23) of the Native American children were classified as lower SES.

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Instruments

The locus of control scale administered was the Academic Achievement Accountability questionnaire (AAA) (Clifford Cleary, 1972). The AAA consists of 15 questions to which a student responds yes or no. The questions deal with the responsibility a child assumes for marks on school related tests and assignments or the preconceived consequences for such marks when the child does or does not study. For example, question 11 is, "do your marks seem to go up when you study?", and question 12 is, "is a high mark just a matter of 'luck' for you?". A child's response to an item is scored as either indicative of internal locus of control (1) or not indicative of internal locus of control (0). For seven items on the questionnaire a "yes" response is scored as "1" (e.g., as in question 11 above), while for eight items a "no" response is scored as "1" (e.g., as in question 12 above). The summed score for the questionnaire is the overall index of internal locus of control. The grand score reflects a more internal locus of control.

The AAA, which is a pencil and paper questionnaire, was selected over other locus of control scales because of its relative brevity and simple reading and response demands. Also, the items on the questionnaire exhibit good face validity. Clifford and Cleary (1972) report internal consistency coefficients of .66 and .67 for pilot samples of fifth and sixth graders administered the AAA.

Achievement test scores were available for the majority of the sample. For fourth grade children this was the Total Battery scale score from the California Achievement Test (level 14, Form C). For fifth and seventh grade children this was the Complete Battery scale score from the Stanford

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Achievement Test. The Intermediate Level I Battery (Form A) was used with the fifth graders, while the Advanced Battery (Form A) was used with the seventh graders.

Procedure

The AAA and achievement test were administered by the child's self-contained classroom teacher in the fourth and fifth grades. In three of the four junior high schools the AAA and Achievement test were administered by the child's social studies teacher. At the remaining junior high school they were administered by the school counselor. The AAA and achievement test were administered during the second week of October. Some children did not complete all portions of the achievement test. This largely accounts for the approximately 13% of the sample for which Total or Complete Battery scores were unavailable.

Results

Internal Consistency of AAA

Individual item responses for the AAA were available for the fifth grade children. An internal consistency analysis of the questionnaire yielded an alpha of .58. While this value suggests that the AAA is of insufficient reliability to be used as an individual diagnostic instrument, the reliability of the questionnaire is adequate for the research purposes addressed here.

Analysis of Variance

A 3 x 2 x 4 x 2 (Grade x Sex x Ethnicity x SES) analysis of variance was conducted on the AAA summed scores (hereafter referred to as locus of control scores). The four-way interaction was not analyzed because of extremely small *n*'s for some of the cells and its sum of squares was pooled with the error sum of squares.[1] The two- and three-way interaction effects were not statistically significant. All main effects were significant, with $F(2,1889) = 28.12$,

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$p < .01$ for grade; $F(1,1889) = 14.52$, $p < .01$ for sex; $F(3,1889) = 3.02$, $p < .05$ for ethnicity; and $F(1,1889) = 37.09$, $p < .01$ for SES. Table 2 lists the group means associated with each main effect.

Insert Table 2 about here

These effects will be described in the order listed above.

Grade. Seventh graders were significantly more internal than fourth graders ($p < .01$) and fifth graders ($p < .01$), and fifth graders were significantly more internal than fourth graders ($p < .01$) according to Duncan's Multiple Range Test for unequal n's.

Sex. Girls were significantly more internal than boys. The lack of significant interactions of sex with grade suggests that during the grades four through seven (roughly ages 8½ to 12½ years) the degree to which girls were more internal than boys remained relatively constant.

Ethnicity. The White children were the most internal of the ethnic groups, followed by the Native Americans, Mexican Americans, and Blacks in that order. Because a variety of pairwise and nonpairwise comparisons were made, Scheffe's test was used to evaluate group differences in the locus of control scores. Pairwise comparisons yielded a highly significant difference between the White and Mexican American children ($p < .01$), and a marginally significant difference between the White and Black children ($p < .10$). Comparisons involving all four ethnic groups yielded a significant difference between White children and all other children ($p < .01$). No other comparison involving all the ethnic groups approached statistical significance (all $ps > .10$).

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Socioeconomic Status. The largest effect in the analysis of variance was for SES, with mid-upper SES children being more internal than lower SES children.

As previously discussed, the relative effects of ethnicity and SES on locus of control scores has been an issue of some debate. A direct comparison of these effects was made for the White and Mexican American samples. (Sample sizes for the Black and Native American children were considered too small for such a comparison). The Pearson correlation between locus of control scores and ethnicity (Mexican American = 0; White = 1) was, r = .101, while that between locus of control scores and SES (lower = 0; mid-upper = 1) was, r = .165. A t-test for the difference between dependent correlations revealed that SES was a significantly stronger correlate of locus of control scores than was ethnicity for this subsample (t = 2.26, df = 1845, $p < .05$).

Locus of Control and Achievement Test Performance

Table 3 lists the Pearson and partial correlation between locus of control scores and

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Insert Table 3 about here

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achievement test performance. These are listed for each grade separately as a different achievement test was used at each grade. The partial correlations control for the effects of sex, SES, and ethnicity (DUMMY variable coding). All zero-order correlations were of moderate size (rs ranging from .331 to .425) and were little affected by the partialling

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procedure (partial rs ranging from .278 to .401). All correlations were highly significant (ps < .01).

Discussion

The major contribution of the present research is that it addresses a number of factors related to locus of control in a single study sampling a large number of school age children. The consistent findings that greater internality is positively associated with both academic achievement and age or grade were confirmed. Also confirmed were the less consistently reported findings of greater internality among females, Whites, and middle to upper SES children. Analysis of the differential relationship of ethnicity and SES to locus of control in the White and Mexican American children, however, revealed that SES was a significantly greater correlate of locus of control than was ethnicity. This result calls into question the practice of attributing characteristics to children solely on the basis of membership in a particular ethnic group. One can imagine ethnically different children of the same SES who are more similar in their sense of locus of control than children of the same ethnic background but of different SES.

The findings of the present study do not support the view of Solomon et al. (1969) and Rabinowitz (1978) that school specific locus of control scales are unlikely to show a pronounced effect for SES. The locus of control scale used in the present study assessed the responsibility children assumed for school related activities only and yet the strongest effect on its scores were for SES. This result is not surprising when one realizes that much of the successes and failures children experience in

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their daily lives occur in the context of school.

A finding of potential educational importance is the moderate correlation at all grades between greater internal locus of control and academic achievement even when controlling for the effects of sex, ethnicity, and SES. The strength of these correlations suggests that research addressing a causal relationship between locus of control and academic achievement may prove valuable.

What little research exists to date suggests that locus of control has a greater influence on academic achievement than vice versa (Stipek & Weisz, 1981). If further research confirms this finding it will have important implications for educational practices and research. These would include a more thorough attempt to identify those factors which determine a child's locus of control as well as conditions which may serve to promote an internal locus of control in the child. It remains both an interesting and feasible hypothesis that increasing a sense of internality in the child will have beneficial consequences for academic achievement.

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Footnotes

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[1]Some of the cells in the three-way interactions were extremely small also, particularly those including Native American children only. In a subsequent analysis, the analysis of variance was conducted on all locus of control scores except those for the Native American children. All cells in the three-way interactions consisted of n's of 6 or greater, and no interaction effect was statisfically significant.

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Table 1

Sample Distribution by Grade, Sex, and Ethnicity

		Ethnicity			
Grade	Sex	White	Black	Mexican American	Native American
Fourth	Male	290	6	47	5
	Female	258	9	39	5
Fifth	Male	296	14	32	5
	Female	265	6	38	9
Seventh	Male	256	7	29	6
	Female	274	9	24	2

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Table 2

Group Locus of Control Means within Each Main Effect

Main Effect					
		Fourth	Fifth	Seventh	
Grade	MD	11.61	12.22	12.53	
	SD	2.02	1.98	2.12	
		Male	Female		
Sex	M	11.94	12.28		
	SD	2.22	1.89		
		White	Black	Mex. Am.	Nat. Am.
Ethnicity	M	12.20	11.47	11.54	11.88
	SD	2.06	2.26	2.09	1.76
		Lower	Mid-Upper		
SES	M	11.64	12.36		
	SD	2.18	1.99		

Note. Greater scores reflect greater internality.

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Table 3

Correlations between Locus of Control Scores and Achievement Test Performance

Grade	n	Zero-order correlation	Partial correlation[a]
Fourth	597	.331**	.278**
Fifth	567	.397**	.369**
Seventh	524	.425**	.401**

[a]Partial correlations controlled for sex, SES, and ethnicity.

**$p < .01$

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